

IN THE SPECIFICATION:

Please amend the specification of the application as follows:

Please amend paragraph [0001] as follows:

[0001] The present invention relates to a guiding grid of variable geometry for a turbine, particularly for a turbocharger. More particularly, the invention relates to a guiding grid of the type having a plurality of guiding vanes arranged in angular distances around a central axis wherein each vane is pivotal about an associated pivoting axis to assume different angles in relation to the central axis. For pivoting the vanes, a unison ring is displaceable around the central axis relative to the nozzle ring as well as a transmission mechanism for transmitting the respective displacement of the unison ring to the adjustment shafts. This transmission mechanism comprises a first transmission element having an opening in which a second transmission element is slidably guided.

Please amend paragraph [0006] as follows:

[0006] According to the invention these objects are achieved in a surprisingly uncomplicated manner by forming the second transmission element as a lever which is pivotally articulated on one of the rings and is dragged by this ring during relative movement between unison ring and nozzle ring, while immersing into said opening of the first transmission element in an approximately radial direction.

Please amend paragraph [0008] as follows:

[0008] In principle, the pitman lever could be fixed to the respective adjustment shaft of a guiding vane, and could immerge into the opening of a first transmission element supported by the unison ring. Tests, however, have shown that it is more favorable if the second transmission element is pivotal directly on the associated ring, while it immerges approximately in a radial direction into the opening of the first transmission element, which, as preferred, is formed on the respective adjustment shaft.

Please amend paragraph [00016] as follows:

[00016] In Fig. 2, the nozzle ring is merely indicated in dash-dotted lines for the sake of clarity of the cooperation of the elements so that one can see how the dragged levers 17 immerge into circular bores or bore holes or opening 18, behind the nozzle ring. The dragged levers 17 are articulated at the unison ring 5 by means of swivel pins or ~~point~~ points of articulation 19, and extend each about in a radial direction with respect to the central axis R (from which position they may pivot slightly to one or the other side). The unison ring 5, in this embodiment, is driven by an electric motor 12' rather than by a pneumatic control housing, as mentioned above, to be displaced or turned around the central axis R. The electric motor 12' may be a part of a control circuit, such as described in one of the above-mentioned U.S. Patent Nos. 5,123,246; 5,444,980 and 6,148,793, which are substantially operated using characteristic

parameters of a cooperating combustion motor. However, it may be advantageous to take the temperature of a postponed catalyst of a vehicle into account as a further parameter, for example in order to connect a by-pass conduit circumventing the turbocharger to the catalyst (to heat it up when starting), be it via a by-pass channel that connects an exhaust gas manifold of the combustion motor directly to the catalyst, or be it over a so-called waste gate. Controlling the motor 12' while taking into account the catalyst's temperature constitutes an invention of its own, independent from the construction of the transmission mechanism, because in this way, hot exhaust gas may be directly supplied to the catalyst, thus avoiding heat energy losses in the turbocharger. The algorithm or combination of the temperature value, as measured, to the characteristic motor parameters may be a fuzzy algorithm or a neuronal one, performing thus in any case a weighting function.

Please amend paragraph [00017] as follows:

[00017] As best seen in Figs. 5 to 7, the swivel pins 19 , when displacing the unison ring, shift by a predetermined angle with respect to the stationary adjustment shafts 8 (because they are on the stationary nozzle ring) which support each of the associated guiding vanes 7. Therefore, the adjustment shafts 8 are also pivoted within the nozzle ring 6 and, while doing so, have a special characteristic of movement and moment. One consequence is that the maximum surface pressure of the dragged lever 17 to the inner surface of the opening 18, and vice-versa,

is relatively small so that wear is also small and reliability in operation is high. Because surface pressure is always exerted at least approximately perpendicularly to the respective surface, no one-sided loads will occur.

Please amend paragraph [00025] as follows:

[00025] When the unison ring 5 displaces in the direction of arrow a by about 20° into a middle position according to Fig. 6, the dragged lever 17 immerses deeper into the groove 18', i.e. the force introduced becomes greater, and the reaction force F_r (i.e. the surface pressure between the inner surface of the groove 18' and the outer surface of the dragged lever 17), due to the closing guiding grid, becomes continuously greater too, in correspondence with the force arrows F_r . Here is the deepest point of immersion of the dragged lever 17 into the opening of the crank part 16 formed as a groove 18'. In this position, the dragged lever 17 is oriented about in a radial direction with respect to the central axis R (see also Fig. 2), and the distance of its end surface 17a from this central axis R is the smallest. By the way, when looking at the cylinder roller 22 (see also Fig. 3), it may well be seen in Fig. 6 how the unison ring 5 is supported by this cylinder roller (and, of course, also by all other cylinder rollers not visible in this figure). Thus, the unison ring 5, in an advantageous manner, is supported by a kind of anti-friction bearing.

Please amend paragraph [00026] as follows:

[00026] When the unison ring 5 displaces by further 20° , the position according to Fig. 7 is reached. Since the construction of this embodiment is approximately symmetric (which ~~in~~ is not necessary under all circumstances, as will be explained below), the end surface 17a is again aligned with the outer surface of the crank part 16, i.e. the inner surface of the groove 18' between the two arrows F_r (Fig. 7) will be still fully utilized for transmitting the surface pressure. When turning from the position of Fig. 6 to that of Fig. 7, the maximum pressure difference M_p induces the maximum surface pressure F_r between the inner surface of the groove 18' between the two arrows F_r and the outer surface of the dragged lever 17 having preferably a rectangular cross-section.

Please amend paragraph [00029] as follows:

[00029] The positions of the guiding vanes 7 related to the positions of the dragged levers 17 shown in Figs. 5 to 7 can best be derived from Fig. 8 which shows a variant comprising offset or cranked dragged levers 17 in a position that corresponds about to that of Fig. 5 (closed position of the vanes 7, while the maximum moment acts on them). It can be seen that the closed position of the guiding vanes 7 is approximately reached when a fork 28 is at least nearly parallel to a middle ~~plain~~ plane P3. However, the present invention is not limited to such a construction; for example, the fork 28 could have curved

fork arms instead of parallel ones, e.g. if a modification of the characteristic is desired.

Please amend paragraph [00032] as follows:

[00032] As a difference to the previous embodiments comprising levers 17 whose longitudinal axis A intersects the articulation point 19, slightly offset or cranked or bent off dragged levers 17' are provided in the present embodiment which have proved to be especially favorable. The crank or bending off is advantageously dimensioned in such a way that two geometrical ~~planes~~ planes P1, P2, which intersect the central axis R, form a predetermined angle β . This angle β is relatively small and should amount to 12° in maximum, but is preferably smaller so that it amounts to 9° in maximum. In practice, an angle β of 6° in maximum, e.g. about 2° , has proved to be particularly favorable.

Please amend paragraph [00033] as follows:

[00033] The offset, crank or bending off can also be defined as an angle δ between the ~~plain~~ plane P2, which intersects the geometrical axis or pivot axis of the adjustment shafts 8 and the central axis R, and the longitudinal axis A of the dragged levers 17'. This angle δ will be large at a small pressure difference in the space 13 (Fig. 1) and decreases with increasing load acting onto the guiding vanes 7 (i.e. Fig. 8 shows the smallest angle δ occurring in this embodiment). For this reason it can be understood why it is preferred to choose

the angular position of the respective opening 18 or 18' (which coincides with the direction of the longitudinal axis A) in such a manner that the longitudinal axis A of a dragged lever 17' relative to a radial plain P2 through the central axis R, in the case of the closed position of the guiding vanes 7 (braking operation), assumes an angle δ which deviates from zero (because an orientation of the longitudinal axis A coinciding with this radial plain P2 would result in an unfavorable characteristic of force and moment in this position of the vanes 7). The angle δ should be chosen as a function of the respective design (depending on occurring forces, surface pressure between the inner surface of the opening 18 or 18' and the outer surface of the dragged levers 17 or 17', available final control forces and so on), but should preferably be 25° to 15° , for example approximately 20° . In the present embodiment, the angle δ is between 21° and 22° , thus being in the preferred range of $20^\circ \pm 2^\circ$.

Please amend paragraph [00035] as follows:

[00035] As seen in Fig. 9, this arrangement induces distinctively more force which means that the final control device (12 or 12') which actuates the lever 29 is considerably relieved. Certainly, a certain loss of force has to be accepted in the braking point (i.e. when the guiding grid with the vanes 7 is closed). However, this loss of force, with an angle β of 6° , corresponds merely to a value of $[1 - \cos(6^\circ)] = 0,547\% \underline{0.547\%}$ and is, thus, imperceptibly small. With reference to the

positions shown in Figs. 5 to 7, a larger displacement stroke is achieved with less force with such cranked or offset dragged levers 17' in the range between the positions of Figs. 6 and 7. However, the larger the force, the more the position of the dragged levers 17' approaches that position which corresponds to that of Fig. 5. Measurements have shown that with guiding vanes 7 opened only by 3°, the moment acting on them decreases already by more than 30% (31.25% have been measured). This constitutes the nominal characteristic of the mechanism, and the dragged lever mechanism according to the present invention, particularly according to the embodiment shown in Fig. 8, takes this characteristic particularly into account.